

REMARKS

[001] The Office Action cites the following art: U.S. Patent Publication Number 20020143521 to *Call, et al* (hereinafter Call); U.S. Patent Number 6,988,093 to *Pic, et al* (hereinafter Pic); U.S. Patent Number 6,128,619 to *Fogarasi, et al* (hereinafter Fogarasi).

[002] Claims 1-20 are pending in the case. Claims 1, 13, and 18 are independent claims. Claims 1-3, and 8-11 are rejected under 35 USC § 102(b) as unpatentable over the combination of Call. Claims 4-7 are rejected under 35 USC § 103(a) as unpatentable in view of the combination of Call and Pic. Claim 12 is rejected under 35 USC § 103(a) as unpatentable in view of the combination of Call, Pic and Fogarasi. Claims 13 are rejected on the same grounds as similar subject matter rejected under Claims 1-12.

[003] Unless otherwise noted, references in this Office Action Response to the present invention refer to the published version of the application, referenced by the first inventor's name: U.S. Publication Number 2005/0160108 to *Charlet, et al* (hereinafter Charlet). References to the current claim set simply use the term Claim, for example: Claim 1.

[004] The Applicants submit the following remarks and respectfully request that the rejections be withdrawn and that the Claims be allowed.

REJECTION OF CLAIMS 1-3, AND 8-11 UNDER 35 USC § 102(b)

[005] Claims 1-3, and 8-11 are rejected under 35 USC § 102(b) as unpatentable over Call.

[006] It is well settled that under 35 U.S.C. §102 “an invention is anticipated if . . . all the claim limitations [are] shown in a single art prior art reference. Every element of the claimed invention must be literally present, arranged as in the claim. The identical invention must be

shown in as complete detail as is contained in the patent claim.” Richardson v. Suzuki Motor Co., Ltd., 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

[007] Applicants respectfully submit that Claim 1 clearly recites features not taught or suggested in Call. It may be helpful to give a brief summary of the teachings of the cited art before explaining why the cited art does not anticipate the limitations of Claim 1.

Call

[008] The Call reference teaches a method for storing and manipulating data elements in a sequence of fixed length integers. Call Abstract. Call explains the inefficiencies of storing text based information such as that of XML documents. Call para. 0007 and 0008. Call seeks to address these inefficiencies by storing data in an addressable array of integer values organized to permit typical functions of hierarchical object oriented handling systems. Call para. 0017. The integer array is divided into items with each item having type metadata stored separately from the item. Call para. 0032-0037. Items are divided into fields and fields include links Call para. 0038, 0051. Call teaches that XML documents are converted to integer representations within the integer storage array. Call para. 0327, 0358. Names and terms used in the XML elements and attributes are stored in separate structures. Call para. 0327, 0372. Call makes a few passing references to hierarchical data structures, specifically, object oriented hierarchical data handling systems such as those that follow the Document Object Model. Call para. 0017.

[009] Claim 1 recites, in relevant part:

providing a hierarchical database;
providing a metadata schema **derived from the hierarchical database**, the metadata schema comprising a **first representation** representative of the hierarchical structure **of the hierarchical database**, a **second representation** representative of the hierarchical structure **of XML documents valid** for passing into and out of the hierarchical database, a database field name, and an **XML element name that maps to the database field name**; and
passing data between an XML document and the hierarchical database using the metadata schema.

[010] Applicants submit that Call fails to teach:

“metadata schema derived from the hierarchical database,”

“a first representation ... of the hierarchical structure of the hierarchical database,”

“a second representation ... of the hierarchical structure of [valid] XML documents,” and

“an XML element name that maps to the database field name.”

[011] The Office Action submits that Call teaches the limitation of “metadata schema derived from the hierarchical database” at para. 0066-0067, 0073-0074, 0115. Applicants disagree.

[012] Call clearly teaches use of a schema, specifically an XML schema, as part of converting data of XML documents to the fixed length integer form for storage in the integer array. Call para. 73. However, Call is silent on the subject of where this schema originates from. In particular, Call makes no correlation or association of the schema with a hierarchical database. Instead, Call simply notes that the metadata in the XML schema is used to manipulate items and fields.

[013] Applicants submit that Call fails to teach or disclose a metadata schema **derived from the hierarchical database**, as recited in Claim 1. Consequently, Claim 1 includes a limitation that is neither taught nor suggested in Call.

[014] Derivation of the metadata schema from the hierarchical database serves two purposes. First, the derived metadata schema defines the form and structure of XML documents that may be passed to the hierarchical database without any changes to the form or structure of the hierarchical database. This is a significant advantage for hierarchical databases such as IMS in which large amounts of time and money have been expended to support certain critical business operations. By not changing the IMS databases, these other dependent systems remain unaffected.

[015] The second purpose served by derivation of the metadata schema is that a first representation can be generated from the hierarchical database. As explained in the specification, a first representation represents the hierarchical structure of the hierarchical database. Charlet par. 58 (published version). The first representation may comprise a list-sublist structure within a set of Java classes that represent at least part of the metadata schema. Charlet para. 59.

[016] In addition, Call fails to teach or disclose “a first representation of ...the hierarchical structure of the hierarchical database.” The Office Action is silent regarding the first representation of the hierarchical database. Applicants submit that the Office Action is silent because there is no existing hierarchical database in Call from which a first representation can be based. Call does not teach the source of the metadata schema. Call does teach hierarchical representations in Figures 6 and 7 and the accompanying description. Call para. 0366-0368. However, these representations are not of a provided/existing hierarchical database. These are

representations of the XML document data. Therefore, Call fails to teach or disclose “a first representation of ...the hierarchical database.”

[017] Call fails to teach or disclose “a second representation ... of the hierarchical structure of [valid] XML documents.” As mentioned Call does teach a representation of hierarchical data. Call para. 0366-0368. However, there is no clear teaching in Call that this representation is a representation of a valid XML document. Instead, Call teaches how a sequence of integer representations can represent hierarchical data. In contrast, the second representation in Claim 1 is part of the metadata schema. Applicants find no teaching in Call of a second representation or that a second representation is part of a metadata schema. Again, the Office Action is silent regarding the second representation.

[018] As recited in Claim 1, the first representation and second representation together are part of the metadata schema. Charlet explains that in certain embodiments, the metadata schema includes a document schema and a database schema. Charlet para. 54. In one embodiment, the database schema comprises Java object classes used for accessing the database by a variety of different applications. Charlet para. 56. In one embodiment, the document schema comprises an XML Schema Definition (XSD) file that defines the XML Schema. Charlet para. 60.

[019] The Office Action is silent regarding the first representation and the second representation which together cooperate to form at least part of the metadata schema. Call fails to teach or disclose anything that constitutes a part of the metadata schema. Therefore, these limitation are not taught in Call and the rejection should be withdrawn.

[020] For completeness, Applicants also note that Call fails to teach or disclose “an XML element name that maps to the database field name.” The Office Action points to several

teachings in Call which deal with database names and element names. Call 0108, 0207, 0011, 0044-0046, 0073, 0108, 0372, and 0375. However, none of these references teach the limitation recited in the claim “an XML element name that **maps** to the database field name.” The database field name is the name of a field in a database. The XML element name is the name of an element structure in the XML document.

[021] Applicants find nothing in Call that teaches or explains a mapping of a database field name to an XML element name. This is in part because Call fails to teach a database. Because no database is taught there is also no teaching of mapping between the name in the XML element and the field names of a database.

[022] The importance of the mapping between field name and element name is explained in the specification. This mapping permits the first representation and second representation to be different in hierarchical structure and still useable with the present invention. Charlet explains this feature in relation to the mapping module 206 in paragraph 53.

[023] Applicants submit that the Office Action fails to establish a *prima facie* case of anticipation to reject Claim 1 because Call fails to teach each element of Claim 1. Claims 2-3, and 8-11 depend from Claim 1. Therefore, Claims 2-3 and 8-11 are allowable for at least the same reasons.

REJECTION OF CLAIMS 4-7 UNDER 35 USC §103(a)

[024] Claims 4-7 are rejected under 35 USC § 103(a) as unpatentable over the combination of Call and Pic.

[025] To establish a *prima facie* case of obviousness, the combination of prior art references must teach or suggest all the claim limitations. MPEP §2142. In addition, “it is

insufficient that the prior art disclose[...] the components of the patented device, either separately or used in other combinations; there must be some teaching, suggestion, or incentive to make the combination made by the inventor.” *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir. 1990). Applicants respectfully assert that Call and Pic do not teach or disclose each element of the independent claims.

[026] As discussed above, Call fails to teach or disclose several limitations of Claim 1. Claims 4-7 are allowable because they depend from an allowable base claim, Claim 1. Pic fails to teach the missing elements of Call.

[027] The Office Action asserts that Call teaches the receiving, initializing, and sequentially writing steps of Claim 4. Applicants disagree. Claim 4 recites “initializing a first **database node**...identified by a database node identifier.” As explained above, Call fails to teach a database. Call makes a few brief references to how the integer storage array can serve functions of a database, but lacks any description of a hierarchical database and nodes of such a database. The references in Call relied upon (para. 0265, 0067-0068, 0072, 0075, 0108) are silent regarding a first database node, initializing the first database node, and sequentially writing of raw data from the XML document into the first database node.

[028] Furthermore, Call fails to teach writing of **raw** data of the XML document into the first database node. Call does seem to teach parsing and converting of an XML document into numerical form. Call 0067, 0073. However, Call does not teach storage of raw data from the XML document. Call teaches the parsing of the XML document to obtain the content data which is then converted into the integer storage unit.

[029] In contrast, Claim 4 recites “sequentially writing raw data from the beginning of the XML document into the first database node.” Those of skill in the art recognize that the

writing of raw data means that no formatting or converting of the data in the XML document is performed. Instead, each of the bits of data in the XML document is transferred straight to the database node in its raw, unaltered form. Call fails to teach this element.

[030] Claim 4 next recites selectively identifying a breakpoint in the XML document. A breakpoint is identified so that the method of the present invention functions within the size restrictions of database nodes defined for the hierarchical database. A breakpoint is a point in the raw data that allows for a logical division of the raw data. Charlet 102. Examples of breakpoints include a space between words of text, a line feed following an element delimiter (i.e. "</example-element>"), a carriage return following an element delimiter, or the like. In this manner the raw data of the first database node and a second database node can be examined and the relationship between them better recognized.

[031] The Office Action suggests that "selectively identifying a break point in the XML document" is taught in Pic. Applicants disagree. In particular, Pic fails to teach that break points are identified "in response to the first database node filling with raw data" as recited in Claim 4.

[032] Pic teaches dividing of a multimedia document into a plurality of meta-segments. Pic Abstract. These meta-segments are categorized and may be registered and search such that the meta-segments can be reviewed without reviewing the entire multimedia document. Pic Abstract. At Col. 18, ll. 1-8, Col. 3, ll. 19-62, Col. 7 line 60 to Col. 8 line 20, Pic teaches dividing of a multimedia document based on the type of medium, based on time indicators, or the like. Pic Col. 18, ll. 1-8. Pic teaches separating XML information from audio, video and other types of information.

[033] However, separating XML information from other media types is fundamentally different from identifying a break point in the XML document. Claim 4 recites that the

information **within** the XML document is analyzed to identify the break point, not in comparison to other forms of media content, as taught by Pic. Pic can sift through types of content by reviewing header information. In contrast, identifying a break point may include using size information for the first database node and the raw data of the XML document to then determine the break point. Applicants submit that these determinations are completely different.

[034] Furthermore, Pic and Call are silent on the further limitations of Claim 4, namely initializing a second database node that is a child of the first and sequentially writing raw data beginning at the break point into the second database node.

[035] Applicants note that Claim 4 permits the present invention to store the XML document using its native formatting and structure without changing or manipulating the components of the hierarchical database. In this manner, proven technology, such as the hierarchical database, can be used with modern technologies such as XML documents.

[036] Claim 5 relates to identifying an index indicator identified within the metadata schema for the XML document. The index indicator identifies XML elements that are to be stored in a secondary index. The secondary index allows the associated XML element to be located by conducting a database search. In this manner, XML document data is stored intact (meaning the data is not separated from its format information) in a searchable form. Call makes a few passing references to indexing but says nothing about an index indicator that originates from the metadata schema for the XML document. Therefore, Call fails to teach or disclose each limitation of Claim 5.

[037] Claim 6 recites, among other things:

receiving a query **for the XML document**;
matching each database field of the hierarchical database with a metadata element defined in the metadata schema;

generating an XML element defined by the matching metadata element, the XML element comprising content data from the matching database field; and assembling the XML elements into the XML document.

[038] Call fails to teach receiving a query for the XML document which is stored in the hierarchical database. Call mentions query at para. 0071 which relates to generating ordered sets of the data. However, Call fails to teach that the hierarchical database can be queried for a whole XML document.

[039] Additionally, Call fails to teach retrieval of the XML document (both content and format or structure). Claim 6 recites matching of database fields with metadata elements and generation of corresponding XML elements. Applicants find no teaching or disclosure in Call for generating XML elements. An XML element is structural element of an XML document. Call is silent regarding generating the XML elements of an XML document. Finally, because Call fails to generate elements, Call also fails to assemble these elements into an XML document. Applicants submit that Call fails to teach the limitations of Claim 6.

[040] Regarding Claim 7, Call fails to teach storing of XML formatting information. Consequently, Call also fails to teach retrieving of a sub-tree of an XML document having XML descendent elements that include XML formatting information. Applicants submit that Call fails to teach the limitations of Claim 7

REJECTION OF CLAIM 12 UNDER 35 USC §103(a)

[041] Claim 12 is rejected under 35 USC §103(a) as unpatentable over the combination of Call, Pic, and Fogarasi.

[042] Fogarasi teaches generation of an application that accesses a hierarchical database. Fogarasi Abstract. The system, method, and apparatus of Fogarasi generates object

oriented software to permit modern technologies such as web browsers to interact with a hierarchical database such as IMS. Fogarasi Col. 5, ll. 21-32.

[043] Claim 12 depends from Claim 1. As explained above, Call and Pic fail to teach or disclose the limitations of Claim 1. Fogarasi fails to cure those deficiencies. Therefore, Claim 12 is allowable.

REJECTION OF CLAIMS 13-20

[044] The Office Action rejected Claims 13-20 on similar grounds to the rejections of Claims 1-12 in as much as the subject matter is similar. Applicants agree that in as much as Claims 13-20 have similar subject matter these claims should be allowed or rejected on the same grounds. Based on the remarks above, Applicants submit that Claims 13-20 are allowable for substantially the same reasons that rejected Claims 1-11 are allowable.

[045] However, Applicants note that certain of Claims 13-20 have significant differences from the subject matter of Claims 1-11. Specifically, Claim 17 recites “wherein the metadata schema comprises a set of java classes representative of one or more nodes and one or more fields of the hierarchical database.” Claim 18 is even more specific, and recites that the database schema comprises “a set of java classes representative of one or more nodes and one or more database fields of the hierarchical database.” Applicants find no reference to java classes in Fogarasi, Pic, or Call. Because the references of record fail to teach or disclose each limitation of Claims 17 and 18, Claims 17 and 18 are allowable.

NO MOTIVATION TO COMBINE

[046] In addition, the Office Action does not cite “some suggestion or motivation, either in the references themselves or in the knowledge generally available” to combine the cited prior art references. MPEP § 2142. “The teaching or suggestion to make the claimed combination must be found in the prior art and not in the applicant’s disclosure.” MPEP § 2142. “[I]t is impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered obvious. . . . This court has previously stated that ‘[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.’” *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

[047] The Office Action at page 4 states, “Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Call’s and Pic’s teachings to better manage databases because each can represent a different characteristic/category of data thus, facilitating information searching and retrieval.” Call is directed towards an efficient way to store and manage text-based data. Pic is concerned with managing and analyzing multimedia files efficiently. Neither of these references teach or disclose the desirability or possibility of storing an XML document in a hierarchical database. In particular, none of the references teach that the XML document is stored intact, decomposed (just the content), or as a combination of intact and decomposed forms in a hierarchical database. Pic and Call also clearly fail to teach or disclose retrieval of the XML document including its content data, formatting data, and structure from the hierarchical database. The appearance of terms from the claims in the prior art references without more is not sufficient to suggest that the references themselves contain a motivation to make the combination suggested. Applicants submit that the motivation only

comes from Applicants disclosure. Even if the combination suggested is made the resulting device or method still lacks recited limitations of the independent claims as indicated above.

[048] Applicants submit that the Examiner has not established a *prima facie* case for obviousness as outlined in §2142 of the MPEP. The cited reasoning relies upon the applicants' disclosure. In addition, the Office Action fails to cite to any relevant portion of the cited art that illustrates a motivation to combine the references.

CONCLUSION

[049] Applicants submit that the Office Action fails to establish a case of anticipation with respect to Claims 1-3, and 8-11. In addition, the Office Action fails to establish a *prima facie* case of obviousness to reject Claims 4-7 and 12. Applicants submit that at least the same reasons for allowance apply to Claims 13-20 as well. No motivation to combine has been cited. In light of the arguments, Applicants submit that Claims 1-20 are in a condition for allowance.

[050] In view of the foregoing, Applicants submit that the application is in condition for allowance. In the event any questions or issues remain that can be resolved with a phone call, Applicants respectfully request that the Examiner initiate a telephone conference with the undersigned.

Respectfully submitted,

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